



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/788,894	02/27/2004	Hisayoshi Fujimoto	10921.208US01	4550
23552 7590 07/11/2008 MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903				
EXAMINER				
NGUYEN, ALLEN H				
ART UNIT		PAPER NUMBER		
2625				
MAIL DATE		DELIVERY MODE		
07/11/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/788,894

Applicant(s)

FUJIMOTO ET AL.

Examiner

ALLEN H. NGUYEN

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 25 April 2008.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-10 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

- This office action is responsive to the following communication:
Amendment filed on 04/25/2008.
- Claims 1-10 are currently pending in the application.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Response to Arguments

2. Applicant's arguments filed 04/25/2008 have been fully considered but they are not persuasive.

3. With respect to applicants' argument that "'Aosaki '359 does not suggest or disclose that the claimed (a) the print head 131 does not have a projection protruding beyond the lens toward the photosensitive recording medium; and (b) there is nothing that directly contacts the photosensitive medium, both requirements of Claim 1.

In reply: Aosaki '359 does not explicitly show wherein said print head is provided with a projection which is offset in the secondary scanning direction with respect to said lens, the projection protruding beyond said lens toward said photosensitive recording medium to come into direct contact with said photosensitive recording medium.

However, the above-mentioned claimed limitations are well known in the art as evidenced by Imai '941. In particular, Imai '941 teaches wherein said print head (A Print Head 2, fig. 3) is provided with a projection (i.e., the print head 2 is ink jet type having an ink projection face 2b at its bottom; Col. 4, lines 52-54, fig. 3) which is offset in the secondary scanning direction with respect to said lens (i.e., the print head 2 is mounted across the width of the opening 91 and movable along the length of the opening; Col. 5, lines 55-57, fig. 2), the projection protruding beyond said lens toward said photosensitive recording medium (The Print Object 10, fig. 2) to come into direct contact with said photosensitive recording medium (i.e., the ink projection face 2b of the print head 2 faces the top of the print object 10 with a small gap; Col. 5, lines 58-60, fig. 2).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2, 4-5, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aosaki et al. (US 6,963,359) in view of Imai (US 6,092,941).

Regarding claim 1, Aosaki '359 discloses an image forming apparatus (Printer Head unit 131, fig. 25) comprising:

a case (Case 140, fig. 25) accommodating a photosensitive recording medium (i.e., a photosensitive sheet and an image receiving sheet of the instant film 128; Col. 20, lines 1-2) and having an opening for exposing said photosensitive recording medium (i.e., a photo printer section for recording a full-color image on the instant film 128 of the film pack 125 placed behind the exposure opening 129a; Col. 19, lines 45-48);

a print head (Printer Head unit 131, fig. 25) having a lens (A micro lens array 142, fig. 25) for converging light and serving for illuminating said photosensitive recording medium with light (i.e., the light emitting elements 143-145 are focused in a line on the photosensitive surface of the instant film 128 along the main scan direction, the micro lenses 142a-142c for the light beams; Col. 20, lines 46-50, fig. 25);

wherein said print head is movable relative to said case in the a secondary scanning direction (i.e., the printer head unit 131 is located near a top edge of the exposure opening 125a of the film pack 25, with its longitudinal direction M oriented perpendicularly to the advancing direction S of the instant film 128; see col. 20, lines 15-21, fig. 24);

Aosaki '359 does not explicitly show wherein said print head is provided with a projection which is offset in the secondary scanning direction with respect to said lens, the projection protruding beyond said lens toward said photosensitive recording medium to come into direct contact with said photosensitive recording medium.

However, the above-mentioned claimed limitations are well known in the art as evidenced by Imai '941. In particular, Imai '941 teaches wherein said print head (A Print Head 2, fig. 3) is provided with a projection (i.e., the print head 2 is ink jet type having

an ink projection face 2b at its bottom; Col. 4, lines 52-54, fig. 3) which is offset in the secondary scanning direction with respect to said lens (i.e., the print head 2 is mounted across the width of the opening 91 and movable along the length of the opening; Col. 5, lines 55-57, fig. 2), the projection protruding beyond said lens toward said photosensitive recording medium (The Print Object 10, fig. 2) to come into direct contact with said photosensitive recording medium (i.e., the ink projection face 2b of the print head 2 faces the top of the print object 10 with a small gap; Col. 5, lines 58-60, fig. 2).

In view of the above, having the system of Aosaki and then given the well-established teaching of Imai, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the system of Aosaki as taught by Imai to include: print head is provided with a projection which is offset in the secondary scanning direction with respect to said lens, the projection protruding beyond said lens toward said photosensitive recording medium to come into direct contact with said photosensitive recording medium, since Imai stated in col. 1, lines 5-10 that such a modification would ensure relating to an image forming apparatus wherein an image is formed, or printed, on a print medium such as paper, by mechanically conveying a print head mounted on a carriage in the direction vertical to that of feeding the print medium by a feeder.

Regarding claim 2, Aosaki '359 discloses the image forming apparatus (Printer Head unit 131, fig. 25),

wherein said case (Case 140, fig. 25) has a pair of side walls positioned on both sides of said photosensitive recording medium in the secondary scanning direction (i.e., the instant film 128 has a processing solution pod 128a along its top edge, the solution pod 128a is broken by the pressure of the developing rollers 133 while being advanced through the developing rollers 133. Thereby, the processing solution is spread between a photosensitive sheet and an image receiving sheet of the instant film 128; see cols. 19-20, lines 63-67 to lines 1-2), one of said pair of side walls being formed with an ejection orifice for ejecting said photosensitive recording medium to outside (i.e., designated by 129a is a cutout for the advance claw to enter the film pack 125 when pushing out the exposed instant film 128; see col. 20, lines 21-23, fig. 24),

wherein said projection is disposed opposite said ejection orifice across said lens (i.e., the printer head unit 131 consists of the multi-color projection type printing head 138 and a head driver 139 which are accommodated in a light-shielding frame 137. The printing head 138 has a light emitting element array 141 and a micro lens array 142 extending in the main scan direction inside a case 140; see col. 20, lines 24-30, fig. 25).

Regarding claim 4, Aosaki '359 discloses the image forming apparatus (Printer Head unit 131, fig. 25), wherein a size of said projection (i.e., the size of print head, figs. 4, 24) in a primary scanning direction is less than a size of said opening of said case in the primary scanning direction (i.e., the size that the print head can travel) and no less than a size of the image recording region (i.e., a dot that the print head prints) of said photosensitive recording medium in the primary scanning direction (figs. 4, 24).

Regarding claim 5, Aosaki '359 discloses the image forming apparatus (Printer Head unit 131, fig. 25), wherein said lens and said projection (The printer head unit 131 consists of the multi-color projection type printing head 138, col. 20, lines 24-26) are disposed adjacent to each other in the secondary scanning direction (i.e., the rows of the light emitting elements 143 to 145 extend in the main scan direction and are shifted from each other in the sub scan direction; see col. 20, lines 33-35, fig. 25).

Regarding claim 9, Aosaki '359 discloses the image forming apparatus (Printer Head unit 131, fig. 25), further comprising a transparent member (the instant film 128 of the film pack 125, fig. 22) for covering a light exit surface of said lens, wherein said projection is provided at said transparent member (i.e., the processing solution is spread between a photosensitive sheet and an image receiving sheet of the instant film 128; see col. 20, lines 1-2).

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aosaki et al. (US 6,963,359) in view of Imai (US 6,092,941), and further in view of Anderson (US 2003/0226501).

Regarding claim 3, the combination of Aosaki '359 and Imai '941 does not explicitly show the image forming apparatus, wherein said photosensitive recording medium has an air vent for releasing inside air,

wherein said projection has a notch for avoiding interference with said air vent.

However, the above-mentioned claimed limitations are well known in the art as evidenced by Anderson '501. In particular, Anderson '501 teaches the image forming apparatus (a printing device, fig. 1), wherein said photosensitive recording medium has an air vent for releasing inside air (i.e., the orifices extend through the side wall of the tube 24 so that pressurized air within the tube 24 creates air jets emanating from the orifices 9, 12 and 15; see page 3, paragraph [0054], fig. 1B),

wherein said projection has a notch (a wheel 610 with notches or transverse grooves 612, page 9, paragraph [0103], fig. 17) for avoiding interference with said air vent.

In view of the above, having the combination system of Aosaki and Imai and then given the well-established teaching of Anderson, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the combination system of Aosaki and Imao as taught by Anderson to include: the image forming apparatus, wherein said photosensitive recording medium has an air vent for releasing inside air, wherein said projection has a notch for avoiding interference with said air vent, since the image forming apparatus, wherein said photosensitive recording medium has an air vent for releasing inside air, since Anderson stated on page 1, paragraph [0009] that such a modification would employs relatively small orifices, valves and nozzles for depositing the desired quantity and color of ink on the print medium, very fine grade inks are required in which particle sizes of the pigments within the inks are kept to a minimum to help keep the orifices, valves, and nozzles of the ink system from becoming clogged.

6. Claims 6-8, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aosaki et al. (US 6,963,359) in view of Imai (US 6,092,941), and further in view of Ohba (US 2001/0026312).

Regarding claim 6, the combination of Aosaki '359 and Imai '941 does not explicitly show the image forming apparatus, further comprising a support member for supporting said lens, wherein said projection is formed integrally with said support member.

However, the above-mentioned claimed limitations are well known in the art as evidenced by Ohba '312. In particular, Ohba '312 teaches the image forming apparatus (an image exposure apparatus, fig. 1), further comprising a support member for supporting said lens (i.e., a laser diode, which is one of semiconductor light emitting devices and is used as a light source, and a collimator lens are incorporated in the light source assembly 124; see page 5, paragraph [0071], fig. 3), wherein said projection is formed integrally with said support member (i.e., by assembling the light source assembly 124 to the standing wall portion 122, the laser diode and the collimator lens are attached in predetermined positions of the light source unit 100; see page 6, paragraph [0071], fig. 3).

In view of the above, having the combination system of Aosaki and Imai and then given the well-established teaching of Ohba, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the system of Aosaki as taught by Ohba to include: the image forming apparatus, further comprising a

support member for supporting said lens, wherein said projection is formed integrally with said support member, since Ohba stated on page 1, paragraph [0001] that such a modification would relate to a scan-exposure device for scan-exposure of photosensitive materials such as printing plates with light beams emitted from light sources moving along a main-scanning direction or a sub-scanning direction.

Regarding claim 7, the combination of Aosaki '359 and Imai '941 does not explicitly show the image forming apparatus, further comprising a support member having a slit for inserting said lens and a recess connected to the slit, and a supplementary member separate from the support member, wherein when one part of said supplementary member is inserted into said recess, another part of said supplementary member constitutes said projection.

However, the above-mentioned claimed limitations are well known in the art as evidenced by Ohba '312. In particular, Ohba '312 teaches the image forming apparatus (an image exposure apparatus, fig. 1), further comprising a support member having a slit for inserting said lens and a recess connected to the slit (i.e., the optical system assembly 126 is provided with a long fixing bed 136; page 6, paragraph [0073], fig. 3), and a supplementary member separate from the support member (i.e., on this fixing bed 136, a converging lens holder 138 to which a converging lens is assembled; page 6, paragraph [0073], fig. 3), wherein when one part of said supplementary member is inserted into said recess (disposed in this order, page 6, paragraph [0073], fig. 3), another part of said supplementary member constitutes said projection (i.e., the light

source units 100 are attached to the stage 106 with a predetermined spacing in a state in which the positions thereof are respectively adjusted so that light beams are focused and spot positions thereof are aligned in a line; see page 6, paragraph [0074], fig. 3).

Regarding claim 8, the combination of Aosaki '359 and Imai '941 does not explicitly show the image forming apparatus, further comprising a lens holder for surrounding and supporting said lens, said lens holder being inserted into said slit, wherein said supplementary member abuts against said lens holder.

However, the above-mentioned claimed limitations are well known in the art as evidenced by Ohba '312. In particular, Ohba '312 teaches the image forming apparatus (an image exposure apparatus, fig. 1), further comprising a lens holder for surrounding and supporting said lens (i.e., a cylindrical lens holder 150 to which a convex cylindrical lens and a half-wave plate are assembled; see page 6, paragraph [0074]), said lens holder being inserted into said slit (i.e., the optical system assembly 126 is provided with a long fixing bed 136; page 6, paragraph [0073], fig. 3), wherein said supplementary member abuts against said lens holder (i.e., on this fixing bed 136, a lens holder is disposed in this order; page 6, paragraph [0073]).

Regarding claim 10, the combination of Aosaki '359 and Imai '941 does not explicitly show the image forming apparatus, further comprising a lens holder for surrounding and supporting said lens, said lens holder is inserted into said slit, wherein said transparent member abuts against said lens holder.

However, the above-mentioned claimed limitations are well known in the art as evidenced by Ohba '312. In particular, Ohba '312 teaches the image forming apparatus (an image exposure apparatus, fig. 1), further comprising a lens holder for surrounding and supporting said lens (i.e., a cylindrical lens holder 150 to which a convex cylindrical lens and a half-wave plate are assembled; see page 6, paragraph [0074]), said lens holder is inserted into said slit (i.e., the optical system assembly 126 is provided with a long fixing bed 136; page 6, paragraph [0073], fig. 3),

wherein said transparent member abuts against said lens holder (i.e., a peripheral surface of the eccentric cam 116 abuts the leg portion 106A at the rotating drum 54 side due to a spring force of the plate springs 108; see page 7, paragraph [0088], fig. 3).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kawamura et al. (US 6,312,071) discloses scanning type image formation apparatus.

Nankou et al. (US 5,040,027) discloses printing apparatus.

Kohyama (US 6,126,274) discloses image recording apparatus having an intermediate image receiving means for a variable electric field to eject toner particles.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **ALLEN H. NGUYEN** whose telephone number is (571)270-1229. The examiner can normally be reached on M-F from 9:00 AM-6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Poon can be reached on (571)-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/King Y. Poon/
Supervisory Patent Examiner, Art Unit 2625

/Allen H Nguyen/
Examiner, Art Unit 2625